LEAM Drilling Systems, Inc.

097-03761

Survey Report

Company:	CHESAPEAKE OPERATING	**Date:**	02/15/2011	**Time:** 08:40:56	**Page:** 1
Field:	Upshur County, WV	**Co-ordinate(NE) Reference:**	Well: #1H, Grid North		
Site:	James Ogden	**Vertical (TVD) Reference:**	GE: 1950 + KB: 15 1965.0		
Well:	#1H	**Section (VS) Reference:**	Well (0.00N,0.00E,340.00Azi)		
Wellpath:	OH	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Adapti

Field: Upshur County, WV

Map System:	US State Plane Coordinate System 1927	**Map Zone:**	West Virginia, Southern Zone
Geo Datum:	NAD27 (Clarke 1866)	**Coordinate System:**	Well Centre
Sys Datum:	Mean Sea Level	**Geomagnetic Model:**	IGRF2010

Site: James Ogden

SIte is Centered On the 1H

Site Position:		**Northing:**	661890.10 ft	**Latitude:**	38	48	55.779	N
From:	Map	**Easting:**	2205132.30 ft	**Longitude:**	80	16	48.345	W
Position Uncertainty:	0.00 ft			**North Reference:**			Grid	
Ground Level:	1950.00 ft			**Grid Convergence:**			0.45	deg

Well: #1H **Slot Name:**

Well Position:	+N/-S 0.00 ft	**Northing:**	661890.10 ft	**Latitude:**	38	48	55.779	N
	+E/-W 0.00 ft	**Easting :**	2205132.30 ft	**Longitude:**	80	16	48.345	W
Position Uncertainty:	0.00 ft							

Wellpath: OH

		Drilled From:	Surface
		Tie-on Depth:	0.00 ft
Current Datum:	GE: 1950 + KB: 15 **Height** 1965.00 ft	**Above System Datum:**	Mean Sea Level
Magnetic Data:	12/29/2010	**Declination:**	-8.58 deg
Field Strength:	52425 nT	**Mag Dip Angle:**	66.71 deg

Vertical Section:	**Depth From (TVD)** ft	**+N/-S** ft	**+E/-W** ft	**Direction** deg
	0.00	0.00	0.00	340.00

Survey Program for Definitive Wellpath

Date: 01/14/2011 **Validated:** No **Version:** 0

Actual From ft	**To** ft	**Survey**	**Toolcode**	**Tool Name**
0.00	2372.00	Survey #1 (0.00-2372.00)	Gyroscope	Gyroscope
2372.00	6961.00	Survey #2 (2372.00-6961.00)	MWD	Std MWD

Survey

MD ft	**Incl** deg	**Azim** deg	**TVD** ft	**+N/-S** ft	**+E/-W** ft	**VS** ft	**DLS** deg/100ft	**Build** deg/100ft	**Turn** deg/100ft	**Tool/Comment**
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIE LINE
100.00	0.97	39.90	100.00	0.65	0.54	0.42	0.97	0.97	0.00	Gyroscope
200.00	0.71	52.57	199.98	1.68	1.58	1.03	0.32	-0.26	12.67	Gyroscope
300.00	0.61	99.99	299.98	1.96	2.59	0.95	0.54	-0.10	47.42	Gyroscope
400.00	0.33	134.75	399.98	1.66	3.32	0.43	0.39	-0.28	34.76	Gyroscope
500.00	0.41	57.54	499.97	1.65	3.83	0.24	0.47	0.08	-77.21	Gyroscope
600.00	0.76	81.31	599.97	1.95	4.79	0.19	0.42	0.35	23.77	Gyroscope
700.00	0.75	113.07	699.96	1.79	6.04	-0.39	0.41	-0.01	31.76	Gyroscope
800.00	0.64	132.15	799.95	1.16	7.06	-1.33	0.25	-0.11	19.08	Gyroscope
900.00	0.52	112.46	899.95	0.61	7.89	-2.13	0.23	-0.12	-19.69	Gyroscope
1000.00	0.63	78.86	999.94	0.54	8.85	-2.52	0.35	0.11	-33.60	Gyroscope
1100.00	0.62	83.95	1099.94	0.71	9.93	-2.73	0.06	-0.01	5.09	Gyroscope
1200.00	0.50	118.83	1199.93	0.55	10.85	-3.19	0.35	-0.12	34.88	Gyroscope
1300.00	0.41	140.53	1299.93	0.07	11.46	-3.86	0.19	-0.09	21.70	Gyroscope
1400.00	0.34	121.56	1399.93	-0.37	11.94	-4.43	0.14	-0.07	-18.97	Gyroscope
1500.00	0.51	83.63	1499.92	-0.47	12.64	-4.76	0.32	0.17	-37.93	Gyroscope
1600.00	0.53	110.50	1599.92	-0.58	13.51	-5.17	0.24	0.02	26.87	Gyroscope
1700.00	0.48	132.15	1699.92	-1.03	14.26	-5.84	0.20	-0.05	21.65	Gyroscope
1800.00	0.50	146.52	1799.91	-1.67	14.81	-6.63	0.12	0.02	14.37	Gyroscope
1900.00	0.39	159.30	1899.91	-2.35	15.17	-7.40	0.15	-0.11	12.78	Gyroscope
2000.00	0.45	167.68	1999.91	-3.06	15.37	-8.13	0.09	0.06	8.38	Gyroscope
2100.00	0.45	171.72	2099.90	-3.83	15.51	-8.90	0.03	0.00	4.04	Gyroscope

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Survey Report

Company:	CHESAPEAKE OPERATING	**Date:** 02/15/2011	**Time:** 08:40:56	**Page:**	2
Field:	Upshur County, WV	**Co-ordinate(NE) Reference:**	Well: #1H, Grid North		
Site:	James Ogden	**Vertical (TVD) Reference:**	GE: 1950 + KB: 15 1965.0		
Well:	#1H	**Section (VS) Reference:**	Well (0.00N,0.00E,340.00Azi)		
Wellpath:	OH	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Adapti

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
2200.00	0.52	146.40	2199.90	-4.59	15.82	-9.73	0.22	0.07	-25.32	Gyroscope
2300.00	0.61	123.88	2299.90	-5.27	16.51	-10.60	0.24	0.09	-22.52	Gyroscope
2372.00	0.56	137.41	2371.89	-5.74	17.07	-11.23	0.20	-0.07	18.79	Gyroscope
2428.00	0.53	112.90	2427.89	-6.04	17.49	-11.66	0.42	-0.05	-43.77	MWD
2492.00	1.23	151.74	2491.88	-6.76	18.09	-12.54	1.38	1.09	60.69	MWD
2556.00	2.64	164.84	2555.85	-8.79	18.80	-14.69	2.29	2.20	20.47	MWD
2620.00	3.34	177.76	2619.76	-12.08	19.26	-17.94	1.51	1.09	20.19	MWD
2681.00	3.87	179.16	2680.64	-15.91	19.36	-21.57	0.88	0.87	2.30	MWD
2744.00	4.22	181.10	2743.48	-20.36	19.35	-25.74	0.60	0.56	3.08	MWD
2807.00	5.01	184.26	2806.28	-25.42	19.10	-30.42	1.32	1.25	5.02	MWD
2870.00	6.50	186.20	2868.96	-31.71	18.51	-36.12	2.38	2.37	3.08	MWD
2933.00	7.21	192.88	2931.51	-39.10	17.24	-42.64	1.69	1.13	10.60	MWD
2994.00	7.38	187.69	2992.01	-46.72	15.86	-49.33	1.12	0.28	-8.51	MWD
3057.00	7.56	187.16	3054.48	-54.84	14.81	-56.60	0.31	0.29	-0.84	MWD
3118.00	8.17	182.24	3114.91	-63.15	14.14	-64.18	1.49	1.00	-8.07	MWD
3181.00	8.96	182.86	3177.20	-72.53	13.72	-72.84	1.26	1.25	0.98	MWD
3244.00	10.02	180.57	3239.34	-82.91	13.42	-82.50	1.79	1.68	-3.63	MWD
3308.00	11.07	181.80	3302.26	-94.62	13.17	-93.41	1.68	1.64	1.92	MWD
3371.00	12.13	184.58	3363.97	-107.26	12.45	-105.05	1.90	1.68	4.41	MWD
3435.00	13.18	183.30	3426.42	-121.25	11.49	-117.87	1.70	1.64	-2.00	MWD
3498.00	14.33	184.00	3487.61	-136.20	10.54	-131.58	1.84	1.83	1.11	MWD
3560.00	15.82	187.16	3547.47	-152.24	8.95	-146.11	2.74	2.40	5.10	MWD
3623.00	16.00	188.31	3608.06	-169.35	6.62	-161.40	0.58	0.29	1.83	MWD
3687.00	16.70	188.31	3669.47	-187.17	4.02	-177.26	1.09	1.09	0.00	MWD
3749.00	16.79	186.81	3728.84	-204.88	1.67	-193.10	0.71	0.15	-2.42	MWD
3812.00	16.00	184.88	3789.28	-222.57	-0.15	-209.09	1.52	-1.25	-3.06	MWD
3875.00	16.08	182.59	3849.83	-239.93	-1.28	-225.03	1.01	0.13	-3.63	MWD
3939.00	16.88	181.45	3911.20	-258.08	-1.92	-241.86	1.35	1.25	-1.78	MWD
4002.00	16.96	180.57	3971.47	-276.41	-2.24	-258.97	0.43	0.13	-1.40	MWD
4065.00	17.23	182.86	4031.69	-294.92	-2.80	-276.17	1.15	0.43	3.63	MWD
4128.00	16.88	186.46	4091.92	-313.33	-4.29	-292.96	1.77	-0.56	5.71	MWD
4192.00	16.17	188.83	4153.28	-331.36	-6.71	-309.09	1.53	-1.11	3.70	MWD
4256.00	15.82	189.01	4214.80	-348.79	-9.44	-324.52	0.55	-0.55	0.28	MWD
4319.00	15.91	187.08	4275.40	-365.84	-11.85	-339.72	0.85	0.14	-3.06	MWD
4383.00	15.47	184.09	4337.02	-383.06	-13.54	-355.32	1.44	-0.69	-4.67	MWD
4446.00	15.47	185.58	4397.73	-399.80	-14.96	-370.57	0.63	0.00	2.37	MWD
4509.00	16.17	190.33	4458.35	-416.79	-17.35	-385.73	2.34	1.11	7.54	MWD
4571.00	16.70	191.38	4517.82	-434.02	-20.65	-400.78	0.98	0.85	1.69	MWD
4634.00	16.17	190.94	4578.24	-451.51	-24.10	-416.03	0.86	-0.84	-0.70	MWD
4697.00	16.61	189.89	4638.68	-468.99	-27.31	-431.36	0.84	0.70	-1.67	MWD
4759.00	16.44	187.34	4698.12	-486.42	-29.96	-446.84	1.20	-0.27	-4.11	MWD
4823.00	16.00	186.11	4759.58	-504.17	-32.05	-462.81	0.87	-0.69	-1.92	MWD
4888.00	16.08	187.87	4822.04	-522.00	-34.24	-478.81	0.76	0.12	2.71	MWD
4951.00	16.70	189.89	4882.48	-539.56	-36.99	-494.37	1.34	0.98	3.21	MWD
5014.00	16.96	188.13	4942.79	-557.57	-39.84	-510.32	0.91	0.41	-2.79	MWD
5077.00	17.14	187.60	5003.02	-575.87	-42.37	-526.65	0.38	0.29	-0.84	MWD
5140.00	17.67	186.11	5063.13	-594.58	-44.61	-543.46	1.10	0.84	-2.37	MWD
5204.00	17.49	185.93	5124.14	-613.80	-46.64	-560.83	0.29	-0.28	-0.28	MWD
5268.00	17.84	185.84	5185.13	-633.12	-48.63	-578.31	0.55	0.55	-0.14	MWD
5331.00	16.70	186.37	5245.29	-651.72	-50.62	-595.10	1.83	-1.81	0.84	MWD
5393.00	17.23	184.79	5304.59	-669.72	-52.37	-611.42	1.13	0.85	-2.55	MWD
5457.00	17.23	187.16	5365.72	-688.57	-54.35	-628.46	1.10	0.00	3.70	MWD
5519.00	16.17	190.24	5425.10	-706.18	-57.03	-644.09	2.23	-1.71	4.97	MWD

LEAM Drilling Systems, Inc.

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Survey Report

Company:	CHESAPEAKE OPERATING	**Date:** 02/15/2011	**Time:** 08:40:56	**Page:**	3
Field:	Upshur County, WV	**Co-ordinate(NE) Reference:**	Well: #1H, Grid North		
Site:	James Ogden	**Vertical (TVD) Reference:**	GE: 1950 + KB: 15 1965.0		
Well:	#1H	**Section (VS) Reference:**	Well (0.00N,0.00E,340.00Azi)		
Wellpath:	OH	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Adapti

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
5582.00	15.91	189.36	5485.65	-723.33	-59.99	-659.19	0.57	-0.41	-1.40	MWD
5646.00	16.61	190.94	5547.09	-740.97	-63.15	-674.68	1.29	1.09	2.47	MWD
5708.00	16.26	190.15	5606.56	-758.21	-66.36	-689.79	0.67	-0.56	-1.27	MWD
5771.00	15.73	190.59	5667.12	-775.29	-69.49	-704.77	0.86	-0.84	0.70	MWD
5835.00	14.41	188.66	5728.91	-791.69	-72.28	-719.23	2.21	-2.06	-3.02	MWD
5897.00	14.94	187.87	5788.89	-807.24	-74.54	-733.06	0.91	0.85	-1.27	MWD
5960.00	16.17	188.12	5849.58	-823.97	-76.89	-747.98	1.96	1.95	0.40	MWD
6022.00	16.26	187.95	5909.12	-841.11	-79.31	-763.26	0.16	0.15	-0.27	MWD
6084.00	15.56	184.26	5968.74	-858.00	-81.13	-778.51	1.98	-1.13	-5.95	MWD
6147.00	15.03	183.38	6029.51	-874.58	-82.24	-793.71	0.92	-0.84	-1.40	MWD
6209.00	15.38	182.94	6089.34	-890.82	-83.13	-808.66	0.59	0.56	-0.71	MWD
6272.00	15.82	183.03	6150.02	-907.73	-84.01	-824.26	0.70	0.70	0.14	MWD
6300.00	16.40	181.40	6176.92	-915.50	-84.31	-831.45	2.63	2.07	-5.82	MWD
6363.00	17.90	184.30	6237.12	-934.04	-85.26	-848.56	2.74	2.38	4.60	MWD
6395.00	15.50	194.00	6267.77	-943.10	-86.66	-856.58	11.47	-7.50	30.31	MWD
6426.00	12.80	208.90	6297.84	-950.13	-89.32	-862.28	14.56	-8.71	48.06	MWD
6458.00	10.80	229.30	6329.18	-955.19	-93.31	-865.67	14.36	-6.25	63.75	MWD
6489.00	9.70	246.40	6359.69	-958.13	-97.91	-866.86	10.39	-3.55	55.16	MWD
6520.00	9.30	260.60	6390.27	-959.59	-102.77	-866.57	7.65	-1.29	45.81	MWD
6551.00	8.30	265.90	6420.90	-960.15	-107.48	-865.49	4.15	-3.23	17.10	MWD
6583.00	8.50	269.10	6452.56	-960.36	-112.14	-864.08	1.59	0.62	10.00	MWD
6614.00	10.00	274.50	6483.15	-960.18	-117.12	-862.22	5.59	4.84	17.42	MWD
6646.00	12.20	280.50	6514.56	-959.35	-123.21	-859.35	7.76	6.87	18.75	MWD
6678.00	14.30	288.10	6545.70	-957.50	-130.30	-855.19	8.51	6.56	23.75	MWD
6710.00	16.20	293.70	6576.58	-954.48	-138.14	-849.67	7.51	5.94	17.50	MWD
6742.00	17.80	298.40	6607.18	-950.36	-146.53	-842.93	6.59	5.00	14.69	MWD
6773.00	20.00	299.50	6636.51	-945.49	-155.32	-835.35	7.19	7.10	3.55	MWD
6804.00	21.90	299.80	6665.46	-940.01	-164.95	-826.91	6.14	6.13	0.97	MWD
6835.00	24.20	298.80	6693.98	-934.08	-175.53	-817.71	7.53	7.42	-3.23	MWD
6866.00	25.90	300.20	6722.06	-927.61	-186.95	-807.73	5.81	5.48	4.52	MWD
6898.00	27.80	299.80	6750.61	-920.38	-199.47	-796.65	5.96	5.94	-1.25	MWD
6929.00	26.40	295.10	6778.21	-913.87	-211.99	-786.25	8.25	-4.52	-15.16	MWD
6961.00	26.70	297.40	6806.84	-907.54	-224.81	-775.92	3.35	0.94	7.19	MWD

LEAM Drilling Systems, Inc.

097-03761

Survey Report - Geographic

Company:	CHESAPEAKE OPERATING	**Date:**	02/15/2011	**Time:** 08:41:17	**Page:** 1
Field:	Upshur County, WV	**Co-ordinate(NE) Reference:**	Well: #1H, Grid North		
Site:	James Ogden	**Vertical (TVD) Reference:**	GE: 1950 + KB: 15 1965.0		
Well:	#1H	**Section (VS) Reference:**	Well (0.00N,0.00E,340.00Azi)		
Wellpath:	OH	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Adapti

Field: Upshur County, WV

Map System:	US State Plane Coordinate System 1927	**Map Zone:**	West Virginia, Southern Zone
Geo Datum:	NAD27 (Clarke 1866)	**Coordinate System:**	Well Centre
Sys Datum:	Mean Sea Level	**Geomagnetic Model:**	IGRF2010

Site: James Ogden

SIte is Centered On the 1H

Site Position:		**Northing:**	661890.10 ft	**Latitude:**	38 48	55.779	N
From:	Map	**Easting:**	2205132.30 ft	**Longitude:**	80 16	48.345	W
Position Uncertainty:	0.00 ft			**North Reference:**		Grid	
Ground Level:	1950.00 ft			**Grid Convergence:**		0.45	deg

Well: #1H **Slot Name:**

Well Position:	+N/-S	0.00 ft	**Northing:**	661890.10 ft	**Latitude:**	38 48	55.779	N
	+E/-W	0.00 ft	**Easting:**	2205132.30 ft	**Longitude:**	80 16	48.345	W
Position Uncertainty:		0.00 ft						

Wellpath: OH

				Drilled From:	Surface
				Tie-on Depth:	0.00 ft
Current Datum:	GE: 1950 + KB: 15	**Height**	1965.00 ft	**Above System Datum:**	Mean Sea Level
Magnetic Data:	12/29/2010			**Declination:**	-8.58 deg
Field Strength:	52425 nT			**Mag Dip Angle:**	66.71 deg

Vertical Section:	**Depth From (TVD)**	**+N/-S**	**+E/-W**	**Direction**
	ft	ft	ft	deg
	0.00	0.00	0.00	340.00

Survey Program for Definitive Wellpath

Date: 01/14/2011 **Validated:** No **Version:** 0

Actual From ft	**To** ft	**Survey**	**Toolcode**	**Tool Name**
0.00	2372.00	Survey #1 (0.00-2372.00)	Gyroscope	Gyroscope
2372.00	6961.00	Survey #2 (2372.00-6961.00)	MWD	Std MWD

Survey

MD ft	**Incl** deg	**Azim** deg	**TVD** ft	**+N/-S** ft	**+E/-W** ft	**Map Northing** ft	**Map Easting** ft	**<— Latitude —>** Deg Min Sec	**<— Longitude —>** Deg Min Sec
0.00	0.00	0.00	0.00	0.00	0.00	661890.10	2205132.30	38 48 55.779 N	80 16 48.345 W
100.00	0.97	39.90	100.00	0.65	0.54	661890.75	2205132.84	38 48 55.785 N	80 16 48.338 W
200.00	0.71	52.57	199.98	1.68	1.58	661891.78	2205133.88	38 48 55.795 N	80 16 48.325 W
300.00	0.61	99.99	299.98	1.96	2.59	661892.06	2205134.89	38 48 55.798 N	80 16 48.312 W
400.00	0.33	134.75	399.98	1.66	3.32	661891.76	2205135.62	38 48 55.795 N	80 16 48.303 W
500.00	0.41	57.54	499.97	1.65	3.83	661891.75	2205136.13	38 48 55.795 N	80 16 48.297 W
600.00	0.76	81.31	599.97	1.95	4.79	661892.05	2205137.09	38 48 55.798 N	80 16 48.285 W
700.00	0.75	113.07	699.96	1.79	6.04	661891.89	2205138.34	38 48 55.796 N	80 16 48.269 W
800.00	0.64	132.15	799.95	1.16	7.06	661891.26	2205139.36	38 48 55.790 N	80 16 48.256 W
900.00	0.52	112.46	899.95	0.61	7.89	661890.71	2205140.19	38 48 55.784 N	80 16 48.245 W
1000.00	0.63	78.86	999.94	0.54	8.85	661890.64	2205141.15	38 48 55.784 N	80 16 48.233 W
1100.00	0.62	83.95	1099.94	0.71	9.93	661890.81	2205142.23	38 48 55.785 N	80 16 48.220 W
1200.00	0.50	118.83	1199.93	0.55	10.85	661890.65	2205143.15	38 48 55.784 N	80 16 48.208 W
1300.00	0.41	140.53	1299.93	0.07	11.46	661890.17	2205143.76	38 48 55.779 N	80 16 48.200 W
1400.00	0.34	121.56	1399.93	-0.37	11.94	661889.73	2205144.24	38 48 55.775 N	80 16 48.194 W
1500.00	0.51	83.63	1499.92	-0.47	12.64	661889.63	2205144.94	38 48 55.773 N	80 16 48.186 W
1600.00	0.53	110.50	1599.92	-0.58	13.51	661889.52	2205145.81	38 48 55.772 N	80 16 48.175 W
1700.00	0.48	132.15	1699.92	-1.03	14.26	661889.07	2205146.56	38 48 55.768 N	80 16 48.165 W
1800.00	0.50	146.52	1799.91	-1.67	14.81	661888.43	2205147.11	38 48 55.761 N	80 16 48.158 W
1900.00	0.39	159.30	1899.91	-2.35	15.17	661887.75	2205147.47	38 48 55.755 N	80 16 48.154 W
2000.00	0.45	167.68	1999.91	-3.06	15.37	661887.04	2205147.67	38 48 55.748 N	80 16 48.151 W

LEAM Drilling Systems, Inc.

097-03761

Survey Report - Geographic

Company:	CHESAPEAKE OPERATING	**Date:**	02/15/2011	**Time:** 08:41:17	**Page:** 2
Field:	Upshur County, WV	**Co-ordinate(NE) Reference:**	Well: #1H, Grid North		
Site:	James Ogden	**Vertical (TVD) Reference:**	GE: 1950 + KB: 15 1965.0		
Well:	#1H	**Section (VS) Reference:**	Well (0.00N,0.00E,340.00Azi)		
Wellpath:	OH	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Adapti

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<— Latitude —> Deg Min Sec	<— Longitude —> Deg Min Sec
2100.00	0.45	171.72	2099.90	-3.83	15.51	661886.27	2205147.81	38 48 55.740 N	80 16 48.150 W
2200.00	0.52	146.40	2199.90	-4.59	15.82	661885.51	2205148.12	38 48 55.732 N	80 16 48.146 W
2300.00	0.61	123.88	2299.90	-5.27	16.51	661884.83	2205148.81	38 48 55.726 N	80 16 48.137 W
2372.00	0.56	137.41	2371.89	-5.74	17.07	661884.36	2205149.37	38 48 55.721 N	80 16 48.130 W
2428.00	0.53	112.90	2427.89	-6.04	17.49	661884.06	2205149.79	38 48 55.718 N	80 16 48.125 W
2492.00	1.23	151.74	2491.88	-6.76	18.09	661883.34	2205150.39	38 48 55.711 N	80 16 48.117 W
2556.00	2.64	164.84	2555.85	-8.79	18.80	661881.31	2205151.10	38 48 55.691 N	80 16 48.109 W
2620.00	3.34	177.76	2619.76	-12.08	19.26	661878.02	2205151.56	38 48 55.658 N	80 16 48.103 W
2681.00	3.87	179.16	2680.64	-15.91	19.36	661874.19	2205151.66	38 48 55.620 N	80 16 48.102 W
2744.00	4.22	181.10	2743.48	-20.36	19.35	661869.74	2205151.65	38 48 55.576 N	80 16 48.103 W
2807.00	5.01	184.26	2806.28	-25.42	19.10	661864.68	2205151.40	38 48 55.526 N	80 16 48.106 W
2870.00	6.50	186.20	2868.96	-31.71	18.51	661858.39	2205150.81	38 48 55.464 N	80 16 48.114 W
2933.00	7.21	192.88	2931.51	-39.10	17.24	661851.00	2205149.54	38 48 55.391 N	80 16 48.131 W
2994.00	7.38	187.69	2992.01	-46.72	15.86	661843.38	2205148.16	38 48 55.316 N	80 16 48.149 W
3057.00	7.56	187.16	3054.48	-54.84	14.81	661835.26	2205147.11	38 48 55.236 N	80 16 48.164 W
3118.00	8.17	182.24	3114.91	-63.15	14.14	661826.95	2205146.44	38 48 55.154 N	80 16 48.173 W
3181.00	8.96	182.86	3177.20	-72.53	13.72	661817.57	2205146.02	38 48 55.061 N	80 16 48.179 W
3244.00	10.02	180.57	3239.34	-82.91	13.42	661807.19	2205145.72	38 48 54.959 N	80 16 48.184 W
3308.00	11.07	181.80	3302.26	-94.62	13.17	661795.48	2205145.47	38 48 54.843 N	80 16 48.188 W
3371.00	12.13	184.58	3363.97	-107.26	12.45	661782.84	2205144.75	38 48 54.718 N	80 16 48.198 W
3435.00	13.18	183.30	3426.42	-121.25	11.49	661768.85	2205143.79	38 48 54.580 N	80 16 48.212 W
3498.00	14.33	184.00	3487.61	-136.20	10.54	661753.90	2205142.84	38 48 54.432 N	80 16 48.225 W
3560.00	15.82	187.16	3547.47	-152.24	8.95	661737.86	2205141.25	38 48 54.274 N	80 16 48.247 W
3623.00	16.00	188.31	3608.06	-169.35	6.62	661720.75	2205138.92	38 48 54.105 N	80 16 48.278 W
3687.00	16.70	188.31	3669.47	-187.17	4.02	661702.93	2205136.32	38 48 53.929 N	80 16 48.313 W
3749.00	16.79	186.81	3728.84	-204.88	1.67	661685.22	2205133.97	38 48 53.754 N	80 16 48.344 W
3812.00	16.00	184.88	3789.28	-222.57	-0.15	661667.53	2205132.15	38 48 53.579 N	80 16 48.369 W
3875.00	16.08	182.59	3849.83	-239.93	-1.28	661650.17	2205131.02	38 48 53.408 N	80 16 48.385 W
3939.00	16.88	181.45	3911.20	-258.08	-1.92	661632.02	2205130.38	38 48 53.228 N	80 16 48.395 W
4002.00	16.96	180.57	3971.47	-276.41	-2.24	661613.69	2205130.06	38 48 53.047 N	80 16 48.401 W
4065.00	17.23	182.86	4031.69	-294.92	-2.80	661595.18	2205129.50	38 48 52.864 N	80 16 48.409 W
4128.00	16.88	186.46	4091.92	-313.33	-4.29	661576.77	2205128.01	38 48 52.682 N	80 16 48.430 W
4192.00	16.17	188.83	4153.28	-331.36	-6.71	661558.74	2205125.59	38 48 52.504 N	80 16 48.462 W
4256.00	15.82	189.01	4214.80	-348.79	-9.44	661541.31	2205122.86	38 48 52.332 N	80 16 48.499 W
4319.00	15.91	187.08	4275.40	-365.84	-11.85	661524.26	2205120.45	38 48 52.164 N	80 16 48.531 W
4383.00	15.47	184.09	4337.02	-383.06	-13.54	661507.04	2205118.76	38 48 51.994 N	80 16 48.554 W
4446.00	15.47	185.58	4397.73	-399.80	-14.96	661490.30	2205117.34	38 48 51.828 N	80 16 48.573 W
4509.00	16.17	190.33	4458.35	-416.79	-17.35	661473.31	2205114.95	38 48 51.661 N	80 16 48.605 W
4571.00	16.70	191.38	4517.82	-434.02	-20.65	661456.08	2205111.65	38 48 51.491 N	80 16 48.649 W
4634.00	16.17	190.94	4578.24	-451.51	-24.10	661438.59	2205108.20	38 48 51.318 N	80 16 48.694 W
4697.00	16.61	189.89	4638.68	-468.99	-27.31	661421.11	2205104.99	38 48 51.145 N	80 16 48.736 W
4759.00	16.44	187.34	4698.12	-486.42	-29.96	661403.68	2205102.34	38 48 50.973 N	80 16 48.771 W
4823.00	16.00	186.11	4759.58	-504.17	-32.05	661385.93	2205100.25	38 48 50.798 N	80 16 48.800 W
4888.00	16.08	187.87	4822.04	-522.00	-34.24	661368.10	2205098.06	38 48 50.622 N	80 16 48.829 W
4951.00	16.70	189.89	4882.48	-539.56	-36.99	661350.54	2205095.31	38 48 50.449 N	80 16 48.865 W
5014.00	16.96	188.13	4942.79	-557.57	-39.84	661332.53	2205092.46	38 48 50.271 N	80 16 48.903 W
5077.00	17.14	187.60	5003.02	-575.87	-42.37	661314.23	2205089.93	38 48 50.090 N	80 16 48.937 W
5140.00	17.67	186.11	5063.13	-594.58	-44.61	661295.52	2205087.69	38 48 49.905 N	80 16 48.967 W
5204.00	17.49	185.93	5124.14	-613.80	-46.64	661276.30	2205085.66	38 48 49.716 N	80 16 48.995 W
5268.00	17.84	185.84	5185.13	-633.12	-48.63	661256.98	2205083.67	38 48 49.525 N	80 16 49.022 W
5331.00	16.70	186.37	5245.29	-651.72	-50.62	661238.38	2205081.68	38 48 49.341 N	80 16 49.049 W
5393.00	17.23	184.79	5304.59	-669.72	-52.37	661220.38	2205079.93	38 48 49.163 N	80 16 49.073 W
5457.00	17.23	187.16	5365.72	-688.57	-54.35	661201.53	2205077.95	38 48 48.977 N	80 16 49.099 W

LEAM Drilling Systems, Inc.

Survey Report - Geographic

Company:	CHESAPEAKE OPERATING	**Date:**	02/15/2011	**Time:** 08:41:17	**Page:** 3
Field:	Upshur County, WV	**Co-ordinate(NE) Reference:**	Well: #1H, Grid North		
Site:	James Ogden	**Vertical (TVD) Reference:**	GE: 1950 + KB: 15 1965.0		
Well:	#1H	**Section (VS) Reference:**	Well (0.00N,0.00E,340.00Azi)		
Wellpath:	OH	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Adapti

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<— Latitude —> Deg Min Sec	<— Longitude —> Deg Min Sec
5519.00	16.17	190.24	5425.10	-706.18	-57.03	661183.92	2205075.27	38 48 48.803 N	80 16 49.135 W
5582.00	15.91	189.36	5485.65	-723.33	-59.99	661166.77	2205072.31	38 48 48.634 N	80 16 49.174 W
5646.00	16.61	190.94	5547.09	-740.97	-63.15	661149.13	2205069.15	38 48 48.460 N	80 16 49.216 W
5708.00	16.26	190.15	5606.56	-758.21	-66.36	661131.89	2205065.94	38 48 48.290 N	80 16 49.258 W
5771.00	15.73	190.59	5667.12	-775.29	-69.49	661114.81	2205062.81	38 48 48.121 N	80 16 49.299 W
5835.00	14.41	188.66	5728.91	-791.69	-72.28	661098.41	2205060.02	38 48 47.959 N	80 16 49.336 W
5897.00	14.94	187.87	5788.89	-807.24	-74.54	661082.86	2205057.76	38 48 47.806 N	80 16 49.366 W
5960.00	16.17	188.12	5849.58	-823.97	-76.89	661066.13	2205055.41	38 48 47.641 N	80 16 49.397 W
6022.00	16.26	187.95	5909.12	-841.11	-79.31	661048.99	2205052.99	38 48 47.471 N	80 16 49.430 W
6084.00	15.56	184.26	5968.74	-858.00	-81.13	661032.10	2205051.17	38 48 47.304 N	80 16 49.454 W
6147.00	15.03	183.38	6029.51	-874.58	-82.24	661015.52	2205050.06	38 48 47.141 N	80 16 49.470 W
6209.00	15.38	182.94	6089.34	-890.82	-83.13	660999.28	2205049.17	38 48 46.980 N	80 16 49.483 W
6272.00	15.82	183.03	6150.02	-907.73	-84.01	660982.37	2205048.29	38 48 46.813 N	80 16 49.496 W
6300.00	16.40	181.40	6176.92	-915.50	-84.31	660974.60	2205047.99	38 48 46.736 N	80 16 49.500 W
6363.00	17.90	184.30	6237.12	-934.04	-85.26	660956.06	2205047.04	38 48 46.553 N	80 16 49.514 W
6395.00	15.50	194.00	6267.77	-943.10	-86.66	660947.00	2205045.64	38 48 46.464 N	80 16 49.533 W
6426.00	12.80	208.90	6297.84	-950.13	-89.32	660939.97	2205042.98	38 48 46.394 N	80 16 49.567 W
6458.00	10.80	229.30	6329.18	-955.19	-93.31	660934.91	2205038.99	38 48 46.345 N	80 16 49.618 W
6489.00	9.70	246.40	6359.69	-958.13	-97.91	660931.97	2205034.39	38 48 46.316 N	80 16 49.676 W
6520.00	9.30	260.60	6390.27	-959.59	-102.77	660930.51	2205029.53	38 48 46.302 N	80 16 49.738 W
6551.00	8.30	265.90	6420.90	-960.15	-107.48	660929.95	2205024.82	38 48 46.297 N	80 16 49.797 W
6583.00	8.50	269.10	6452.56	-960.36	-112.14	660929.74	2205020.16	38 48 46.295 N	80 16 49.856 W
6614.00	10.00	274.50	6483.15	-960.18	-117.12	660929.92	2205015.18	38 48 46.297 N	80 16 49.919 W
6646.00	12.20	280.50	6514.56	-959.35	-123.21	660930.75	2205009.09	38 48 46.306 N	80 16 49.996 W
6678.00	14.30	288.10	6545.70	-957.50	-130.30	660932.60	2205002.00	38 48 46.325 N	80 16 50.085 W
6710.00	16.20	293.70	6576.58	-954.48	-138.14	660935.62	2204994.16	38 48 46.355 N	80 16 50.184 W
6742.00	17.80	298.40	6607.18	-950.36	-146.53	660939.74	2204985.77	38 48 46.397 N	80 16 50.290 W
6773.00	20.00	299.50	6636.51	-945.49	-155.32	660944.61	2204976.98	38 48 46.445 N	80 16 50.400 W
6804.00	21.90	299.80	6665.46	-940.01	-164.95	660950.09	2204967.35	38 48 46.500 N	80 16 50.521 W
6835.00	24.20	298.80	6693.98	-934.08	-175.53	660956.02	2204956.77	38 48 46.560 N	80 16 50.654 W
6866.00	25.90	300.20	6722.06	-927.61	-186.95	660962.49	2204945.35	38 48 46.625 N	80 16 50.798 W
6898.00	27.80	299.80	6750.61	-920.38	-199.47	660969.72	2204932.83	38 48 46.697 N	80 16 50.955 W
6929.00	26.40	295.10	6778.21	-913.87	-211.99	660976.23	2204920.31	38 48 46.762 N	80 16 51.113 W
6961.00	26.70	297.40	6806.84	-907.54	-224.81	660982.56	2204907.49	38 48 46.826 N	80 16 51.274 W

LEAM Drilling Systems, Inc.

097-03761

Survey Report

Company:	CHESAPEAKE OPERATING	**Date:** 02/15/2011	**Time:** 08:41:32	**Page:**	1
Field:	Upshur County, WV	**Co-ordinate(NE) Reference:**	Well: #1H, Grid North		
Site:	James Ogden	**Vertical (TVD) Reference:**	GE: 1950 + KB: 15 1965.0		
Well:	#1H	**Section (VS) Reference:**	Well (0.00N,0.00E,340.00Azi)		
Wellpath:	ST	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Adapti

Field: Upshur County, WV

Map System:	US State Plane Coordinate System 1927	**Map Zone:**	West Virginia, Southern Zone
Geo Datum:	NAD27 (Clarke 1866)	**Coordinate System:**	Well Centre
Sys Datum:	Mean Sea Level	**Geomagnetic Model:**	IGRF2010

Site: James Ogden

SIte is Centered On the 1H

Site Position:			**Northing:**	661890.10	ft	**Latitude:**	38	48	55.779 N
From:	Map		**Easting:**	2205132.30	ft	**Longitude:**	80	16	48.345 W
Position Uncertainty:		0.00 ft				**North Reference:**			Grid
Ground Level:		1950.00 ft				**Grid Convergence:**			0.45 deg

Well: #1H **Slot Name:**

Well Position:	+N/-S	0.00 ft	**Northing:**	661890.10	ft	**Latitude:**	38	48	55.779 N
	+E/-W	0.00 ft	**Easting :**	2205132.30	ft	**Longitude:**	80	16	48.345 W
Position Uncertainty:		0.00 ft							

Wellpath: ST

				Drilled From:	OH
				Tie-on Depth:	0.00 ft
Current Datum:	GE: 1950 + KB: 15	**Height**	1965.00 ft	**Above System Datum:**	Mean Sea Level
Magnetic Data:	01/20/2011			**Declination:**	-8.58 deg
Field Strength:	52417 nT			**Mag Dip Angle:**	66.70 deg

Vertical Section: Depth From (TVD) ft	+N/-S ft	+E/-W ft	Direction deg
0.00	0.00	0.00	340.00

Survey Program for Definitive Wellpath

Date: 02/15/2011 **Validated:** No **Version:** 0

Actual From ft	To ft	Survey	Toolcode	Tool Name
6022.00	13203.00	Survey #1 (6022.00-13203.00)	MWD	Std MWD
13203.00	13260.00	Survey #2 (13203.00-13260.00)	Project	Projection

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
6022.00	16.26	187.95	5909.12	-841.11	-79.31	-763.26	0.00	0.00	0.00	TIE LINE
6046.00	15.30	188.40	5932.21	-847.57	-80.24	-769.01	4.03	-4.00	1.87	MWD
6076.00	12.80	200.50	5961.32	-854.60	-81.98	-775.02	12.82	-8.33	40.33	MWD
6108.00	12.30	219.00	5992.57	-860.57	-85.37	-779.48	12.60	-1.56	57.81	MWD
6139.00	13.10	241.50	6022.83	-864.82	-90.54	-781.70	16.06	2.58	72.58	MWD
6171.00	14.20	262.20	6053.94	-867.08	-97.62	-781.40	15.56	3.44	64.69	MWD
6203.00	15.40	278.00	6084.89	-867.02	-105.72	-778.58	13.11	3.75	49.37	MWD
6235.00	16.40	287.30	6115.67	-865.09	-114.24	-773.84	8.54	3.12	29.06	MWD
6267.00	16.20	288.20	6146.39	-862.35	-122.79	-768.35	1.01	-0.62	2.81	MWD
6299.00	14.50	297.00	6177.25	-859.14	-130.60	-762.65	9.00	-5.31	27.50	MWD
6330.00	13.20	298.90	6207.35	-855.66	-137.16	-757.15	4.44	-4.19	6.13	MWD
6362.00	12.90	307.90	6238.52	-851.70	-143.18	-751.37	6.41	-0.94	28.12	MWD
6393.00	12.30	309.30	6268.78	-847.49	-148.46	-745.60	2.17	-1.94	4.52	MWD
6425.00	13.00	312.50	6300.00	-842.90	-153.75	-739.48	3.09	2.19	10.00	MWD
6457.00	13.10	313.00	6331.17	-837.99	-159.06	-733.05	0.47	0.31	1.56	MWD
6487.00	14.10	311.40	6360.33	-833.26	-164.29	-726.81	3.56	3.33	-5.33	MWD
6518.00	14.10	308.80	6390.40	-828.39	-170.06	-720.27	2.04	0.00	-8.39	MWD
6550.00	14.90	309.10	6421.38	-823.35	-176.29	-713.40	2.51	2.50	0.94	MWD
6582.00	14.80	307.90	6452.31	-818.25	-182.71	-706.41	1.01	-0.31	-3.75	MWD
6613.00	15.30	308.10	6482.25	-813.29	-189.06	-699.59	1.62	1.61	0.65	MWD
6645.00	15.10	306.90	6513.13	-808.19	-195.71	-692.51	1.17	-0.62	-3.75	MWD
6677.00	15.60	308.60	6543.98	-803.00	-202.41	-685.34	2.10	1.56	5.31	MWD

LEAM Drilling Systems, Inc.

Survey Report

Company:	CHESAPEAKE OPERATING	**Date:**	02/15/2011	**Time:** 08:41:32	**Page:** 2
Field:	Upshur County, WV	**Co-ordinate(NE) Reference:**	Well: #1H, Grid North		
Site:	James Ogden	**Vertical (TVD) Reference:**	GE: 1950 + KB: 15 1965.0		
Well:	#1H	**Section (VS) Reference:**	Well (0.00N,0.00E,340.00Azi)		
Wellpath:	ST	**Survey Calculation Method:**	Minimum Curvature	**Db:** Adapti	

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
6709.00	14.90	308.60	6574.86	-797.75	-208.98	-678.16	2.19	-2.19	0.00	MWD
6740.00	15.40	310.60	6604.78	-792.58	-215.22	-671.17	2.33	1.61	6.45	MWD
6772.00	14.90	310.40	6635.67	-787.15	-221.58	-663.89	1.57	-1.56	-0.62	MWD
6803.00	16.70	313.90	6665.50	-781.48	-227.83	-656.43	6.57	5.81	11.29	MWD
6834.00	20.70	318.60	6694.86	-774.28	-234.66	-647.32	13.78	12.90	15.16	MWD
6865.00	23.80	322.00	6723.55	-765.24	-242.14	-636.27	10.82	10.00	10.97	MWD
6897.00	27.70	323.20	6752.36	-754.19	-250.57	-623.00	12.30	12.19	3.75	MWD
6928.00	30.60	322.30	6779.43	-742.17	-259.72	-608.59	9.46	9.35	-2.90	MWD
6960.00	35.10	321.40	6806.31	-728.53	-270.44	-592.10	14.14	14.06	-2.81	MWD
6991.00	38.90	320.60	6831.06	-714.04	-282.19	-574.46	12.36	12.26	-2.58	MWD
7022.00	43.10	320.70	6854.45	-698.32	-295.08	-555.28	13.55	13.55	0.32	MWD
7054.00	47.10	320.90	6877.04	-680.75	-309.40	-533.88	12.51	12.50	0.62	MWD
7085.00	50.50	321.30	6897.45	-662.60	-324.04	-511.81	11.01	10.97	1.29	MWD
7117.00	52.50	321.60	6917.37	-643.02	-339.65	-488.07	6.29	6.25	0.94	MWD
7148.00	54.10	322.20	6935.90	-623.46	-354.98	-464.45	5.39	5.16	1.94	MWD
7179.00	55.60	323.60	6953.75	-603.24	-370.27	-440.22	6.09	4.84	4.52	MWD
7211.00	57.60	325.70	6971.36	-581.45	-385.72	-414.46	8.31	6.25	6.56	MWD
7242.00	60.50	326.40	6987.30	-559.40	-400.56	-388.66	9.55	9.35	2.26	MWD
7274.00	63.80	329.00	7002.25	-535.48	-415.67	-361.02	12.57	10.31	8.12	MWD
7305.00	66.40	331.10	7015.30	-511.12	-429.70	-333.33	10.40	8.39	6.77	MWD
7336.00	67.40	333.10	7027.47	-485.92	-443.04	-305.09	6.75	3.23	6.45	MWD
7368.00	68.90	333.20	7039.38	-459.42	-456.46	-275.60	4.70	4.69	0.31	MWD
7399.00	70.00	335.00	7050.26	-433.31	-469.13	-246.73	6.49	3.55	5.81	MWD
7430.00	71.40	335.20	7060.51	-406.78	-481.45	-217.58	4.56	4.52	0.65	MWD
7464.00	73.20	335.50	7070.84	-377.34	-494.96	-185.30	5.36	5.29	0.88	MWD
7494.00	74.70	336.90	7079.14	-350.96	-506.59	-156.53	6.72	5.00	4.67	MWD
7525.00	75.90	339.90	7087.00	-323.08	-517.63	-126.56	10.13	3.87	9.68	MWD
7557.00	77.20	341.50	7094.45	-293.71	-527.91	-95.44	6.34	4.06	5.00	MWD
7589.00	79.80	342.00	7100.83	-263.93	-537.73	-64.10	8.27	8.12	1.56	MWD
7621.00	82.40	342.20	7105.78	-233.85	-547.45	-32.51	8.15	8.12	0.62	MWD
7652.00	85.50	342.00	7109.04	-204.52	-556.92	-1.71	10.02	10.00	-0.65	MWD
7684.00	86.80	342.90	7111.19	-174.08	-566.55	30.19	4.94	4.06	2.81	MWD
7716.00	86.70	342.40	7113.01	-143.59	-576.07	62.10	1.59	-0.31	-1.56	MWD
7747.00	87.50	342.20	7114.58	-114.09	-585.49	93.04	2.66	2.58	-0.65	MWD
7811.00	88.70	340.60	7116.70	-53.47	-605.89	156.98	3.12	1.87	-2.50	MWD
7873.00	88.80	339.20	7118.05	4.74	-627.19	218.96	2.26	0.16	-2.26	MWD
7937.00	88.30	338.30	7119.67	64.37	-650.38	282.93	1.61	-0.78	-1.41	MWD
8001.00	88.40	338.50	7121.51	123.85	-673.93	346.88	0.35	0.16	0.31	MWD
8064.00	89.30	339.40	7122.78	182.63	-696.55	409.85	2.02	1.43	1.43	MWD
8126.00	90.00	341.70	7123.16	241.09	-717.19	471.84	3.88	1.13	3.71	MWD
8190.00	88.90	342.70	7123.77	302.02	-736.76	535.79	2.32	-1.72	1.56	MWD
8252.00	86.80	341.70	7126.10	361.01	-755.70	597.70	3.75	-3.39	-1.61	MWD
8315.00	86.30	341.70	7129.89	420.71	-775.44	660.56	0.79	-0.79	0.00	MWD
8378.00	87.40	342.70	7133.35	480.60	-794.67	723.41	2.36	1.75	1.59	MWD
8441.00	88.70	345.70	7135.49	541.18	-811.81	786.20	5.19	2.06	4.76	MWD
8505.00	90.10	346.40	7136.16	603.29	-827.24	849.84	2.45	2.19	1.09	MWD
8568.00	90.30	346.20	7135.94	664.49	-842.16	912.46	0.45	0.32	-0.32	MWD
8632.00	90.10	345.50	7135.72	726.55	-857.80	976.12	1.14	-0.31	-1.09	MWD
8694.00	88.90	344.50	7136.26	786.43	-873.85	1037.88	2.52	-1.94	-1.61	MWD
8758.00	87.90	343.80	7138.05	847.98	-891.32	1101.69	1.91	-1.56	-1.09	MWD
8820.00	89.80	344.70	7139.29	907.63	-908.15	1163.50	3.39	3.06	1.45	MWD
8883.00	90.50	345.00	7139.13	968.44	-924.61	1226.27	1.21	1.11	0.48	MWD
8945.00	91.30	344.30	7138.15	1028.22	-941.02	1288.06	1.71	1.29	-1.13	MWD

LEAM Drilling Systems, Inc.

097-03761

Survey Report

Company:	CHESAPEAKE OPERATING	**Date:** 02/15/2011	**Time:** 08:41:32	**Page:**	3
Field:	Upshur County, WV	**Co-ordinate(NE) Reference:**	Well: #1H, Grid North		
Site:	James Ogden	**Vertical (TVD) Reference:**	GE: 1950 + KB: 15 1965.0		
Well:	#1H	**Section (VS) Reference:**	Well (0.00N,0.00E,340.00Azi)		
Wellpath:	ST	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Adapti

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
9007.00	91.40	345.90	7136.69	1088.12	-956.96	1349.80	2.58	0.16	2.58	MWD
9070.00	90.80	345.40	7135.48	1149.14	-972.57	1412.48	1.24	-0.95	-0.79	MWD
9133.00	90.30	345.20	7134.88	1210.08	-988.56	1475.21	0.85	-0.79	-0.32	MWD
9195.00	89.00	344.30	7135.26	1269.89	-1004.86	1536.99	2.55	-2.10	-1.45	MWD
9259.00	88.60	344.10	7136.60	1331.46	-1022.29	1600.80	0.70	-0.62	-0.31	MWD
9323.00	88.20	343.40	7138.38	1392.88	-1040.19	1664.64	1.26	-0.62	-1.09	MWD
9386.00	88.70	343.80	7140.09	1453.29	-1057.97	1727.49	1.02	0.79	0.63	MWD
9449.00	87.30	343.80	7142.29	1513.75	-1075.53	1790.32	2.22	-2.22	0.00	MWD
9512.00	86.80	343.40	7145.53	1574.11	-1093.30	1853.11	1.02	-0.79	-0.63	MWD
9574.00	87.30	342.40	7148.72	1633.29	-1111.50	1914.95	1.80	0.81	-1.61	MWD
9636.00	87.10	342.00	7151.75	1692.25	-1130.43	1976.83	0.72	-0.32	-0.65	MWD
9699.00	86.90	341.30	7155.05	1751.96	-1150.24	2039.71	1.15	-0.32	-1.11	MWD
9761.00	86.80	341.30	7158.45	1810.60	-1170.09	2101.60	0.16	-0.16	0.00	MWD
9822.00	85.80	340.40	7162.39	1868.11	-1190.06	2162.47	2.20	-1.64	-1.48	MWD
9885.00	85.90	338.30	7166.95	1926.90	-1212.21	2225.30	3.33	0.16	-3.33	MWD
9947.00	86.20	337.30	7171.22	1984.17	-1235.58	2287.10	1.68	0.48	-1.61	MWD
10010.00	86.20	336.40	7175.40	2041.97	-1260.30	2349.87	1.43	0.00	-1.43	MWD
10072.00	86.70	335.50	7179.23	2098.47	-1285.52	2411.59	1.66	0.81	-1.45	MWD
10135.00	86.70	335.90	7182.86	2155.80	-1311.40	2474.31	0.63	0.00	0.63	MWD
10198.00	87.80	336.20	7185.88	2213.31	-1336.94	2537.09	1.81	1.75	0.48	MWD
10259.00	89.30	334.50	7187.43	2268.73	-1362.37	2597.86	3.72	2.46	-2.79	MWD
10322.00	90.70	334.10	7187.43	2325.49	-1389.69	2660.55	2.31	2.22	-0.63	MWD
10385.00	91.50	335.70	7186.22	2382.53	-1416.41	2723.29	2.84	1.27	2.54	MWD
10446.00	92.10	335.90	7184.30	2438.14	-1441.41	2784.09	1.04	0.98	0.33	MWD
10509.00	92.10	336.90	7181.99	2495.83	-1466.61	2846.93	1.59	0.00	1.59	MWD
10573.00	92.90	337.80	7179.20	2554.84	-1491.23	2910.80	1.88	1.25	1.41	MWD
10636.00	91.90	340.30	7176.56	2613.62	-1513.74	2973.73	4.27	-1.59	3.97	MWD
10699.00	90.70	342.40	7175.13	2673.29	-1533.88	3036.69	3.84	-1.90	3.33	MWD
10762.00	90.40	342.70	7174.53	2733.39	-1552.77	3099.62	0.67	-0.48	0.48	MWD
10826.00	89.30	342.20	7174.70	2794.41	-1572.07	3163.56	1.89	-1.72	-0.78	MWD
10888.00	89.20	342.40	7175.51	2853.47	-1590.91	3225.51	0.36	-0.16	0.32	MWD
10951.00	87.80	340.40	7177.16	2913.15	-1611.00	3288.46	3.87	-2.22	-3.17	MWD
11014.00	88.80	339.90	7179.03	2972.38	-1632.38	3351.43	1.77	1.59	-0.79	MWD
11077.00	89.60	340.10	7179.91	3031.58	-1653.93	3414.43	1.31	1.27	0.32	MWD
11140.00	89.00	338.00	7180.68	3090.40	-1676.45	3477.41	3.47	-0.95	-3.33	MWD
11203.00	88.10	337.30	7182.27	3148.65	-1700.40	3540.33	1.81	-1.43	-1.11	MWD
11265.00	88.90	338.30	7183.89	3206.03	-1723.82	3602.27	2.07	1.29	1.61	MWD
11328.00	89.00	337.80	7185.05	3264.46	-1747.36	3665.22	0.81	0.16	-0.79	MWD
11390.00	89.20	339.00	7186.02	3322.09	-1770.18	3727.19	1.96	0.32	1.94	MWD
11453.00	88.60	339.60	7187.23	3381.02	-1792.45	3790.17	1.35	-0.95	0.95	MWD
11515.00	89.10	341.10	7188.48	3439.39	-1813.29	3852.15	2.55	0.81	2.42	MWD
11578.00	89.30	341.80	7189.35	3499.11	-1833.33	3915.13	1.16	0.32	1.11	MWD
11642.00	89.30	341.00	7190.14	3559.77	-1853.74	3979.10	1.25	0.00	-1.25	MWD
11705.00	88.80	339.90	7191.18	3619.12	-1874.82	4042.09	1.92	-0.79	-1.75	MWD
11768.00	88.50	340.60	7192.67	3678.40	-1896.10	4105.07	1.21	-0.48	1.11	MWD
11831.00	88.90	341.10	7194.09	3737.90	-1916.76	4168.05	1.02	0.63	0.79	MWD
11892.00	89.10	340.40	7195.16	3795.48	-1936.87	4229.03	1.19	0.33	-1.15	MWD
11956.00	89.30	340.30	7196.05	3855.75	-1958.39	4293.03	0.35	0.31	-0.16	MWD
12019.00	89.30	340.30	7196.82	3915.05	-1979.63	4356.02	0.00	0.00	0.00	MWD
12082.00	89.10	339.60	7197.70	3974.23	-2001.22	4419.01	1.16	-0.32	-1.11	MWD
12144.00	89.70	340.10	7198.35	4032.43	-2022.58	4481.01	1.26	0.97	0.81	MWD
12206.00	90.00	339.00	7198.51	4090.52	-2044.24	4543.01	1.84	0.48	-1.77	MWD
12269.00	89.50	337.40	7198.79	4149.02	-2067.64	4605.97	2.66	-0.79	-2.54	MWD
12333.00	88.10	336.40	7200.13	4207.87	-2092.74	4669.86	2.69	-2.19	-1.56	MWD

LEAM Drilling Systems, Inc.

Survey Report

Company:	CHESAPEAKE OPERATING	**Date:** 02/15/2011	**Time:** 08:41:32	**Page:**	4
Field:	Upshur County, WV	**Co-ordinate(NE) Reference:**	Well: #1H, Grid North		
Site:	James Ogden	**Vertical (TVD) Reference:**	GE: 1950 + KB: 15 1965.0		
Well:	#1H	**Section (VS) Reference:**	Well (0.00N,0.00E,340.00Azi)		
Wellpath:	ST	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Adapti

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
12395.00	88.50	336.60	7201.97	4264.70	-2117.45	4731.72	0.72	0.65	0.32	MWD
12458.00	89.40	337.30	7203.12	4322.66	-2142.11	4794.62	1.81	1.43	1.11	MWD
12521.00	90.70	338.30	7203.07	4380.99	-2165.92	4857.57	2.60	2.06	1.59	MWD
12583.00	88.80	337.80	7203.34	4438.49	-2189.09	4919.53	3.17	-3.06	-0.81	MWD
12647.00	88.10	338.70	7205.07	4497.91	-2212.80	4983.48	1.78	-1.09	1.41	MWD
12710.00	88.50	340.80	7206.94	4556.99	-2234.59	5046.44	3.39	0.63	3.33	MWD
12772.00	89.10	340.60	7208.24	4615.49	-2255.08	5108.43	1.02	0.97	-0.32	MWD
12836.00	89.90	341.10	7208.80	4675.95	-2276.07	5172.42	1.47	1.25	0.78	MWD
12900.00	90.90	342.40	7208.35	4736.72	-2296.11	5236.38	2.56	1.56	2.03	MWD
12963.00	88.50	341.70	7208.68	4796.65	-2315.53	5299.34	3.97	-3.81	-1.11	MWD
13027.00	87.50	342.20	7210.91	4857.46	-2335.35	5363.26	1.75	-1.56	0.78	MWD
13090.00	86.50	341.30	7214.21	4917.21	-2355.05	5426.14	2.13	-1.59	-1.43	MWD
13152.00	87.00	341.30	7217.72	4975.84	-2374.89	5488.03	0.81	0.81	0.00	MWD
13203.00	87.50	341.50	7220.17	5024.12	-2391.14	5538.95	1.06	0.98	0.39	MWD
13260.00	87.50	341.50	7222.66	5078.13	-2409.21	5595.88	0.00	0.00	0.00	Project

LEAM Drilling Systems, Inc.

097-03761

Survey Report - Geographic

Company:	CHESAPEAKE OPERATING	**Date:**	02/15/2011	**Time:** 08:41:54	**Page:** 1
Field:	Upshur County, WV	**Co-ordinate(NE) Reference:**	Well: #1H, Grid North		
Site:	James Ogden	**Vertical (TVD) Reference:**	GE: 1950 + KB: 15 1965.0		
Well:	#1H	**Section (VS) Reference:**	Well (0.00N,0.00E,340.00Azi)		
Wellpath:	ST	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Adapti

Field: Upshur County, WV

Map System:	US State Plane Coordinate System 1927	**Map Zone:**	West Virginia, Southern Zone
Geo Datum:	NAD27 (Clarke 1866)	**Coordinate System:**	Well Centre
Sys Datum:	Mean Sea Level	**Geomagnetic Model:**	IGRF2010

Site: James Ogden

SIte is Centered On the 1H

Site Position:			**Northing:**	661890.10 ft	**Latitude:**	38	48	55.779	N
From:	Map		**Easting:**	2205132.30 ft	**Longitude:**	80	16	48.345	W
Position Uncertainty:		0.00 ft			**North Reference:**			Grid	
Ground Level:		1950.00 ft			**Grid Convergence:**			0.45	deg

Well: #1H **Slot Name:**

Well Position:	+N/-S	0.00 ft	**Northing:**	661890.10 ft	**Latitude:**	38	48	55.779	N
	+E/-W	0.00 ft	**Easting :**	2205132.30 ft	**Longitude:**	80	16	48.345	W
Position Uncertainty:		0.00 ft							

Wellpath: ST

				Drilled From:	OH
				Tie-on Depth:	0.00 ft
Current Datum:	GE: 1950 + KB: 15	**Height**	1965.00 ft	**Above System Datum:**	Mean Sea Level
Magnetic Data:	01/20/2011			**Declination:**	-8.58 deg
Field Strength:	52417 nT			**Mag Dip Angle:**	66.70 deg

Vertical Section:	**Depth From (TVD)**	**+N/-S**	**+E/-W**	**Direction**
	ft	ft	ft	deg
	0.00	0.00	0.00	340.00

Survey Program for Definitive Wellpath

Date: 02/15/2011 **Validated:** No **Version:** 0

Actual From (ft)	To (ft)	Survey	Toolcode	Tool Name
6022.00	13203.00	Survey #1 (6022.00-13203.00)	MWD	Std MWD
13203.00	13260.00	Survey #2 (13203.00-13260.00)	Project	Projection

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<— Latitude —> Deg Min Sec	<— Longitude —> Deg Min Sec
6022.00	16.26	187.95	5909.12	-841.11	-79.31	661048.99	2205052.99	38 48 47.471 N	80 16 49.430 W
6046.00	15.30	188.40	5932.21	-847.57	-80.24	661042.53	2205052.06	38 48 47.407 N	80 16 49.442 W
6076.00	12.80	200.50	5961.32	-854.60	-81.98	661035.50	2205050.32	38 48 47.338 N	80 16 49.465 W
6108.00	12.30	219.00	5992.57	-860.57	-85.37	661029.53	2205046.93	38 48 47.279 N	80 16 49.508 W
6139.00	13.10	241.50	6022.83	-864.82	-90.54	661025.28	2205041.76	38 48 47.238 N	80 16 49.574 W
6171.00	14.20	262.20	6053.94	-867.08	-97.62	661023.02	2205034.68	38 48 47.216 N	80 16 49.663 W
6203.00	15.40	278.00	6084.89	-867.02	-105.72	661023.08	2205026.58	38 48 47.217 N	80 16 49.766 W
6235.00	16.40	287.30	6115.67	-865.09	-114.24	661025.01	2205018.06	38 48 47.237 N	80 16 49.873 W
6267.00	16.20	288.20	6146.39	-862.35	-122.79	661027.75	2205009.51	38 48 47.265 N	80 16 49.981 W
6299.00	14.50	297.00	6177.25	-859.14	-130.60	661030.96	2205001.70	38 48 47.297 N	80 16 50.079 W
6330.00	13.20	298.90	6207.35	-855.66	-137.16	661034.44	2204995.14	38 48 47.332 N	80 16 50.162 W
6362.00	12.90	307.90	6238.52	-851.70	-143.18	661038.40	2204989.12	38 48 47.371 N	80 16 50.238 W
6393.00	12.30	309.30	6268.78	-847.49	-148.46	661042.61	2204983.84	38 48 47.414 N	80 16 50.304 W
6425.00	13.00	312.50	6300.00	-842.90	-153.75	661047.20	2204978.55	38 48 47.459 N	80 16 50.370 W
6457.00	13.10	313.00	6331.17	-837.99	-159.06	661052.11	2204973.24	38 48 47.508 N	80 16 50.437 W
6487.00	14.10	311.40	6360.33	-833.26	-164.29	661056.84	2204968.01	38 48 47.555 N	80 16 50.502 W
6518.00	14.10	308.80	6390.40	-828.39	-170.06	661061.71	2204962.24	38 48 47.604 N	80 16 50.575 W
6550.00	14.90	309.10	6421.38	-823.35	-176.29	661066.75	2204956.01	38 48 47.654 N	80 16 50.653 W
6582.00	14.80	307.90	6452.31	-818.25	-182.71	661071.85	2204949.59	38 48 47.705 N	80 16 50.734 W
6613.00	15.30	308.10	6482.25	-813.29	-189.06	661076.81	2204943.24	38 48 47.755 N	80 16 50.813 W
6645.00	15.10	306.90	6513.13	-808.19	-195.71	661081.91	2204936.59	38 48 47.806 N	80 16 50.897 W

LEAM Drilling Systems, Inc.

097-03761

Survey Report - Geographic

Company:	CHESAPEAKE OPERATING	**Date:**	02/15/2011	**Time:** 08:41:54	**Page:** 2
Field:	Upshur County, WV	**Co-ordinate(NE) Reference:**	Well: #1H, Grid North		
Site:	James Ogden	**Vertical (TVD) Reference:**	GE: 1950 + KB: 15 1965.0		
Well:	#1H	**Section (VS) Reference:**	Well (0.00N,0.00E,340.00Azi)		
Wellpath:	ST	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Adapti

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<— Latitude —> Deg Min Sec	<— Longitude —> Deg Min Sec
6677.00	15.60	308.60	6543.98	-803.00	-202.41	661087.10	2204929.89	38 48 47.857 N	80 16 50.981 W
6709.00	14.90	308.60	6574.86	-797.75	-208.98	661092.35	2204923.32	38 48 47.910 N	80 16 51.064 W
6740.00	15.40	310.60	6604.78	-792.58	-215.22	661097.52	2204917.08	38 48 47.961 N	80 16 51.142 W
6772.00	14.90	310.40	6635.67	-787.15	-221.58	661102.95	2204910.72	38 48 48.016 N	80 16 51.222 W
6803.00	16.70	313.90	6665.50	-781.48	-227.83	661108.62	2204904.47	38 48 48.072 N	80 16 51.300 W
6834.00	20.70	318.60	6694.86	-774.28	-234.66	661115.82	2204897.64	38 48 48.144 N	80 16 51.386 W
6865.00	23.80	322.00	6723.55	-765.24	-242.14	661124.86	2204890.16	38 48 48.234 N	80 16 51.479 W
6897.00	27.70	323.20	6752.36	-754.19	-250.57	661135.91	2204881.73	38 48 48.344 N	80 16 51.585 W
6928.00	30.60	322.30	6779.43	-742.17	-259.72	661147.93	2204872.58	38 48 48.463 N	80 16 51.699 W
6960.00	35.10	321.40	6806.31	-728.53	-270.44	661161.57	2204861.86	38 48 48.599 N	80 16 51.833 W
6991.00	38.90	320.60	6831.06	-714.04	-282.19	661176.06	2204850.11	38 48 48.743 N	80 16 51.980 W
7022.00	43.10	320.70	6854.45	-698.32	-295.08	661191.78	2204837.22	38 48 48.899 N	80 16 52.142 W
7054.00	47.10	320.90	6877.04	-680.75	-309.40	661209.35	2204822.90	38 48 49.074 N	80 16 52.321 W
7085.00	50.50	321.30	6897.45	-662.60	-324.04	661227.50	2204808.26	38 48 49.254 N	80 16 52.504 W
7117.00	52.50	321.60	6917.37	-643.02	-339.65	661247.08	2204792.65	38 48 49.449 N	80 16 52.699 W
7148.00	54.10	322.20	6935.90	-623.46	-354.98	661266.64	2204777.32	38 48 49.644 N	80 16 52.891 W
7179.00	55.60	323.60	6953.75	-603.24	-370.27	661286.86	2204762.03	38 48 49.845 N	80 16 53.082 W
7211.00	57.60	325.70	6971.36	-581.45	-385.72	661308.65	2204746.58	38 48 50.061 N	80 16 53.275 W
7242.00	60.50	326.40	6987.30	-559.40	-400.56	661330.70	2204731.74	38 48 50.280 N	80 16 53.461 W
7274.00	63.80	329.00	7002.25	-535.48	-415.67	661354.62	2204716.63	38 48 50.518 N	80 16 53.649 W
7305.00	66.40	331.10	7015.30	-511.12	-429.70	661378.98	2204702.60	38 48 50.760 N	80 16 53.824 W
7336.00	67.40	333.10	7027.47	-485.92	-443.04	661404.18	2204689.26	38 48 51.010 N	80 16 53.990 W
7368.00	68.90	333.20	7039.38	-459.42	-456.46	661430.68	2204675.84	38 48 51.273 N	80 16 54.157 W
7399.00	70.00	335.00	7050.26	-433.31	-469.13	661456.79	2204663.17	38 48 51.532 N	80 16 54.314 W
7430.00	71.40	335.20	7060.51	-406.78	-481.45	661483.32	2204650.85	38 48 51.795 N	80 16 54.467 W
7464.00	73.20	335.50	7070.84	-377.34	-494.96	661512.76	2204637.34	38 48 52.087 N	80 16 54.635 W
7494.00	74.70	336.90	7079.14	-350.96	-506.59	661539.14	2204625.71	38 48 52.349 N	80 16 54.780 W
7525.00	75.90	339.90	7087.00	-323.08	-517.63	661567.02	2204614.67	38 48 52.625 N	80 16 54.916 W
7557.00	77.20	341.50	7094.45	-293.71	-527.91	661596.39	2204604.39	38 48 52.916 N	80 16 55.043 W
7589.00	79.80	342.00	7100.83	-263.93	-537.73	661626.17	2204594.57	38 48 53.211 N	80 16 55.164 W
7621.00	82.40	342.20	7105.78	-233.85	-547.45	661656.25	2204584.85	38 48 53.510 N	80 16 55.284 W
7652.00	85.50	342.00	7109.04	-204.52	-556.92	661685.58	2204575.38	38 48 53.800 N	80 16 55.401 W
7684.00	86.80	342.90	7111.19	-174.08	-566.55	661716.02	2204565.75	38 48 54.102 N	80 16 55.520 W
7716.00	86.70	342.40	7113.01	-143.59	-576.07	661746.51	2204556.23	38 48 54.404 N	80 16 55.637 W
7747.00	87.50	342.20	7114.58	-114.09	-585.49	661776.01	2204546.81	38 48 54.696 N	80 16 55.753 W
7811.00	88.70	340.60	7116.70	-53.47	-605.89	661836.63	2204526.41	38 48 55.297 N	80 16 56.005 W
7873.00	88.80	339.20	7118.05	4.74	-627.19	661894.84	2204505.11	38 48 55.874 N	80 16 56.268 W
7937.00	88.30	338.30	7119.67	64.37	-650.38	661954.47	2204481.92	38 48 56.465 N	80 16 56.555 W
8001.00	88.40	338.50	7121.51	123.85	-673.93	662013.95	2204458.37	38 48 57.055 N	80 16 56.847 W
8064.00	89.30	339.40	7122.78	182.63	-696.55	662072.73	2204435.75	38 48 57.638 N	80 16 57.127 W
8126.00	90.00	341.70	7123.16	241.09	-717.19	662131.19	2204415.11	38 48 58.217 N	80 16 57.382 W
8190.00	88.90	342.70	7123.77	302.02	-736.76	662192.12	2204395.54	38 48 58.821 N	80 16 57.624 W
8252.00	86.80	341.70	7126.10	361.01	-755.70	662251.11	2204376.60	38 48 59.405 N	80 16 57.857 W
8315.00	86.30	341.70	7129.89	420.71	-775.44	662310.81	2204356.86	38 48 59.997 N	80 16 58.101 W
8378.00	87.40	342.70	7133.35	480.60	-794.67	662370.70	2204337.63	38 49 0.590 N	80 16 58.338 W
8441.00	88.70	345.70	7135.49	541.18	-811.81	662431.28	2204320.49	38 49 1.190 N	80 16 58.548 W
8505.00	90.10	346.40	7136.16	603.29	-827.24	662493.39	2204305.06	38 49 1.806 N	80 16 58.737 W
8568.00	90.30	346.20	7135.94	664.49	-842.16	662554.59	2204290.14	38 49 2.412 N	80 16 58.920 W
8632.00	90.10	345.50	7135.72	726.55	-857.80	662616.65	2204274.50	38 49 3.026 N	80 16 59.111 W
8694.00	88.90	344.50	7136.26	786.43	-873.85	662676.53	2204258.45	38 49 3.619 N	80 16 59.308 W
8758.00	87.90	343.80	7138.05	847.98	-891.32	662738.08	2204240.98	38 49 4.229 N	80 16 59.523 W
8820.00	89.80	344.70	7139.29	907.63	-908.15	662797.73	2204224.15	38 49 4.820 N	80 16 59.730 W
8883.00	90.50	345.00	7139.13	968.44	-924.61	662858.54	2204207.69	38 49 5.422 N	80 16 59.932 W

LEAM Drilling Systems, Inc.

097-03761

Survey Report - Geographic

Company:	CHESAPEAKE OPERATING	**Date:** 02/15/2011	**Time:** 08:41:54	**Page:**	3
Field:	Upshur County, WV	**Co-ordinate(NE) Reference:**	Well: #1H, Grid North		
Site:	James Ogden	**Vertical (TVD) Reference:**	GE: 1950 + KB: 15 1965.0		
Well:	#1H	**Section (VS) Reference:**	Well (0.00N,0.00E,340.00Azi)		
Wellpath:	ST	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Adapti

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<— Latitude —> Deg Min Sec	<— Longitude —> Deg Min Sec
8945.00	91.30	344.30	7138.15	1028.22	-941.02	662918.32	2204191.28	38 49 6.014 N	80 17 0.133 W
9007.00	91.40	345.90	7136.69	1088.12	-956.96	662978.22	2204175.34	38 49 6.608 N	80 17 0.329 W
9070.00	90.80	345.40	7135.48	1149.14	-972.57	663039.24	2204159.73	38 49 7.212 N	80 17 0.520 W
9133.00	90.30	345.20	7134.88	1210.08	-988.56	663100.18	2204143.74	38 49 7.816 N	80 17 0.716 W
9195.00	89.00	344.30	7135.26	1269.89	-1004.86	663159.99	2204127.44	38 49 8.408 N	80 17 0.916 W
9259.00	88.60	344.10	7136.60	1331.46	-1022.29	663221.56	2204110.01	38 49 9.018 N	80 17 1.130 W
9323.00	88.20	343.40	7138.38	1392.88	-1040.19	663282.98	2204092.11	38 49 9.626 N	80 17 1.350 W
9386.00	88.70	343.80	7140.09	1453.29	-1057.97	663343.39	2204074.33	38 49 10.225 N	80 17 1.569 W
9449.00	87.30	343.80	7142.29	1513.75	-1075.53	663403.85	2204056.77	38 49 10.824 N	80 17 1.785 W
9512.00	86.80	343.40	7145.53	1574.11	-1093.30	663464.21	2204039.00	38 49 11.422 N	80 17 2.004 W
9574.00	87.30	342.40	7148.72	1633.29	-1111.50	663523.39	2204020.80	38 49 12.008 N	80 17 2.228 W
9636.00	87.10	342.00	7151.75	1692.25	-1130.43	663582.35	2204001.87	38 49 12.592 N	80 17 2.461 W
9699.00	86.90	341.30	7155.05	1751.96	-1150.24	663642.06	2203982.06	38 49 13.184 N	80 17 2.706 W
9761.00	86.80	341.30	7158.45	1810.60	-1170.09	663700.70	2203962.21	38 49 13.765 N	80 17 2.951 W
9822.00	85.80	340.40	7162.39	1868.11	-1190.06	663758.21	2203942.24	38 49 14.335 N	80 17 3.198 W
9885.00	85.90	338.30	7166.95	1926.90	-1212.21	663817.00	2203920.09	38 49 14.918 N	80 17 3.472 W
9947.00	86.20	337.30	7171.22	1984.17	-1235.58	663874.27	2203896.72	38 49 15.486 N	80 17 3.761 W
10010.00	86.20	336.40	7175.40	2041.97	-1260.30	663932.07	2203872.00	38 49 16.059 N	80 17 4.068 W
10072.00	86.70	335.50	7179.23	2098.47	-1285.52	663988.57	2203846.78	38 49 16.620 N	80 17 4.381 W
10135.00	86.70	335.90	7182.86	2155.80	-1311.40	664045.90	2203820.90	38 49 17.188 N	80 17 4.703 W
10198.00	87.80	336.20	7185.88	2213.31	-1336.94	664103.41	2203795.36	38 49 17.759 N	80 17 5.020 W
10259.00	89.30	334.50	7187.43	2268.73	-1362.37	664158.83	2203769.93	38 49 18.308 N	80 17 5.336 W
10322.00	90.70	334.10	7187.43	2325.49	-1389.69	664215.59	2203742.61	38 49 18.871 N	80 17 5.675 W
10385.00	91.50	335.70	7186.22	2382.53	-1416.41	664272.63	2203715.89	38 49 19.437 N	80 17 6.007 W
10446.00	92.10	335.90	7184.30	2438.14	-1441.41	664328.24	2203690.89	38 49 19.989 N	80 17 6.318 W
10509.00	92.10	336.90	7181.99	2495.83	-1466.61	664385.93	2203665.69	38 49 20.561 N	80 17 6.631 W
10573.00	92.90	337.80	7179.20	2554.84	-1491.23	664444.94	2203641.07	38 49 21.146 N	80 17 6.936 W
10636.00	91.90	340.30	7176.56	2613.62	-1513.74	664503.72	2203618.56	38 49 21.729 N	80 17 7.214 W
10699.00	90.70	342.40	7175.13	2673.29	-1533.88	664563.39	2203598.42	38 49 22.320 N	80 17 7.463 W
10762.00	90.40	342.70	7174.53	2733.39	-1552.77	664623.49	2203579.53	38 49 22.916 N	80 17 7.696 W
10826.00	89.30	342.20	7174.70	2794.41	-1572.07	664684.51	2203560.23	38 49 23.520 N	80 17 7.934 W
10888.00	89.20	342.40	7175.51	2853.47	-1590.91	664743.57	2203541.39	38 49 24.105 N	80 17 8.166 W
10951.00	87.80	340.40	7177.16	2913.15	-1611.00	664803.25	2203521.30	38 49 24.697 N	80 17 8.414 W
11014.00	88.80	339.90	7179.03	2972.38	-1632.38	664862.48	2203499.92	38 49 25.284 N	80 17 8.679 W
11077.00	89.60	340.10	7179.91	3031.58	-1653.93	664921.68	2203478.37	38 49 25.871 N	80 17 8.945 W
11140.00	89.00	338.00	7180.68	3090.40	-1676.45	664980.50	2203455.85	38 49 26.454 N	80 17 9.224 W
11203.00	88.10	337.30	7182.27	3148.65	-1700.40	665038.75	2203431.90	38 49 27.032 N	80 17 9.521 W
11265.00	88.90	338.30	7183.89	3206.03	-1723.82	665096.13	2203408.48	38 49 27.600 N	80 17 9.811 W
11328.00	89.00	337.80	7185.05	3264.46	-1747.36	665154.56	2203384.94	38 49 28.180 N	80 17 10.103 W
11390.00	89.20	339.00	7186.02	3322.09	-1770.18	665212.19	2203362.12	38 49 28.751 N	80 17 10.386 W
11453.00	88.60	339.60	7187.23	3381.02	-1792.45	665271.12	2203339.85	38 49 29.335 N	80 17 10.661 W
11515.00	89.10	341.10	7188.48	3439.39	-1813.29	665329.49	2203319.01	38 49 29.914 N	80 17 10.919 W
11578.00	89.30	341.80	7189.35	3499.11	-1833.33	665389.21	2203298.97	38 49 30.506 N	80 17 11.166 W
11642.00	89.30	341.00	7190.14	3559.77	-1853.74	665449.87	2203278.56	38 49 31.107 N	80 17 11.418 W
11705.00	88.80	339.90	7191.18	3619.12	-1874.82	665509.22	2203257.48	38 49 31.695 N	80 17 11.679 W
11768.00	88.50	340.60	7192.67	3678.40	-1896.10	665568.50	2203236.20	38 49 32.283 N	80 17 11.942 W
11831.00	88.90	341.10	7194.09	3737.90	-1916.76	665628.00	2203215.54	38 49 32.872 N	80 17 12.197 W
11892.00	89.10	340.40	7195.16	3795.48	-1936.87	665685.58	2203195.43	38 49 33.443 N	80 17 12.446 W
11956.00	89.30	340.30	7196.05	3855.75	-1958.39	665745.85	2203173.91	38 49 34.040 N	80 17 12.712 W
12019.00	89.30	340.30	7196.82	3915.05	-1979.63	665805.15	2203152.67	38 49 34.628 N	80 17 12.974 W
12082.00	89.10	339.60	7197.70	3974.23	-2001.22	665864.33	2203131.08	38 49 35.215 N	80 17 13.242 W
12144.00	89.70	340.10	7198.35	4032.43	-2022.58	665922.53	2203109.72	38 49 35.792 N	80 17 13.506 W

LEAM Drilling Systems, Inc.

097-03761

Survey Report - Geographic

Company:	CHESAPEAKE OPERATING	**Date:** 02/15/2011	**Time:** 08:41:54	**Page:**	4
Field:	Upshur County, WV	**Co-ordinate(NE) Reference:**	Well: #1H, Grid North		
Site:	James Ogden	**Vertical (TVD) Reference:**	GE: 1950 + KB: 15 1965.0		
Well:	#1H	**Section (VS) Reference:**	Well (0.00N,0.00E,340.00Azi)		
Wellpath:	ST	**Survey Calculation Method:**	Minimum Curvature	**Db:**	Adapti

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<— Latitude —> Deg Min Sec	<— Longitude —> Deg Min Sec
12206.00	90.00	339.00	7198.51	4090.52	-2044.24	665980.62	2203088.06	38 49 36.367 N	80 17 13.774 W
12269.00	89.50	337.40	7198.79	4149.02	-2067.64	666039.12	2203064.66	38 49 36.947 N	80 17 14.064 W
12333.00	88.10	336.40	7200.13	4207.87	-2092.74	666097.97	2203039.56	38 49 37.531 N	80 17 14.375 W
12395.00	88.50	336.60	7201.97	4264.70	-2117.45	666154.80	2203014.85	38 49 38.095 N	80 17 14.682 W
12458.00	89.40	337.30	7203.12	4322.66	-2142.11	666212.76	2202990.19	38 49 38.669 N	80 17 14.988 W
12521.00	90.70	338.30	7203.07	4380.99	-2165.92	666271.09	2202966.38	38 49 39.248 N	80 17 15.283 W
12583.00	88.80	337.80	7203.34	4438.49	-2189.09	666328.59	2202943.21	38 49 39.818 N	80 17 15.570 W
12647.00	88.10	338.70	7205.07	4497.91	-2212.80	666388.01	2202919.50	38 49 40.407 N	80 17 15.864 W
12710.00	88.50	340.80	7206.94	4556.99	-2234.59	666447.09	2202897.71	38 49 40.993 N	80 17 16.134 W
12772.00	89.10	340.60	7208.24	4615.49	-2255.08	666505.59	2202877.22	38 49 41.572 N	80 17 16.387 W
12836.00	89.90	341.10	7208.80	4675.95	-2276.07	666566.05	2202856.23	38 49 42.172 N	80 17 16.646 W
12900.00	90.90	342.40	7208.35	4736.72	-2296.11	666626.82	2202836.19	38 49 42.774 N	80 17 16.894 W
12963.00	88.50	341.70	7208.68	4796.65	-2315.53	666686.75	2202816.77	38 49 43.368 N	80 17 17.133 W
13027.00	87.50	342.20	7210.91	4857.46	-2335.35	666747.56	2202796.95	38 49 43.970 N	80 17 17.378 W
13090.00	86.50	341.30	7214.21	4917.21	-2355.05	666807.31	2202777.25	38 49 44.562 N	80 17 17.621 W
13152.00	87.00	341.30	7217.72	4975.84	-2374.89	666865.94	2202757.41	38 49 45.143 N	80 17 17.866 W
13203.00	87.50	341.50	7220.17	5024.12	-2391.14	666914.22	2202741.16	38 49 45.622 N	80 17 18.066 W
13260.00	87.50	341.50	7222.66	5078.13	-2409.21	666968.23	2202723.09	38 49 46.157 N	80 17 18.290 W

LEAM
Drilling Systems, Inc.

February 15, 2011

Chesapeake Operating
Well: James Ogden #1H
County/Parish: Upshur County, WV

Leam MWD: for the OH from 2,428' MD – 6,961' MD
Projection: No Projection

Leam MWD: For the ST from 6,046' MD – 13,203' MD
Projection: 13,260' MD

This Borehole Survey taken for the OH between 1/6/2011 and 1/15/2011 and for the ST between 1/18/2011 and 2/6/2011, has been conducted and calculated according to the highest professional standards and complies with all known State and federal requirements.

Reviewed and Approved:

Date: February 15, 2011

Physical & Mailing: 2010 East Davis, Conroe, TX 77301
936-756-7577 • 936-756-7595 Fax • 1 (800) 756-7504

LEAM
Drilling Systems Inc.

Survey Certification Form

State of West Virginia
County of Upshur

I, Ricky Barnes, certify that; I am employed by LEAM Drilling Systems, Inc., that I did on the day(s) of Jan. 06, 2011 through Jan. 15, 2011, conduct or supervise the taking of MWD Survey from a depth of 2,428' to 6,961' MD; that the data is true, correct, complete and within the limitations of the tools as set forth by LEAM Drilling Systems, Inc., that I am authorized and qualified to make this report; that this survey was conducted at the request of Chesapeake Operating for the James Ogden #1H in Upshur Co., WV; and that I reviewed this report and find that it conforms to the principals and procedures as set forth by LEAM Drilling Systems, Inc.

Ricky Barnes
MWD Operations Coordinator

LEAM
Drilling Systems Inc.

Survey Certification Form

State of West Virginia
County of Upshur

I, Ricky Barnes, certify that; I am employed by LEAM Drilling Systems, Inc., that I did on the day(s) of Jan. 18, 2011 through Feb. 06, 2011, conduct or supervise the taking of MWD Survey from a depth of 6,046' to 13,260' MD; that the data is true, correct, complete and within the limitations of the tools as set forth by LEAM Drilling Systems, Inc., that I am authorized and qualified to make this report; that this survey was conducted at the request of Chesapeake Operating for the James Ogden #1H ST in Upshur Co., WV; and that I reviewed this report and find that it conforms to the principals and procedures as set forth by LEAM Drilling Systems, Inc.

Ricky Barnes
MWD Operations Coordinator